

## SUBCHAPTER O—COAL MINE SAFETY AND HEALTH

### PART 70—MANDATORY HEALTH STANDARDS—UNDERGROUND COAL MINES

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70.1900 Exhaust Gas Monitoring

AUTHORITY: 30 U.S.C. 811, 813(h), 957, 961.

SOURCE: 59 FR 8327, Feb 18, 1994, unless otherwise noted.

#### Subpart A—General

AUTHORITY: 30 U.S.C. 811 and 813(h).

SOURCE: 45 FR 24000, Apr. 8, 1980, unless otherwise noted.

##### § 70.1 Scope.

This part 70 sets forth mandatory health standards for each underground coal mine subject to the Federal Mine Safety and Health Act of 1977.

##### § 70.2 Definitions.

For the purpose of this part 70, the term:

(a) *Act* means the Federal Mine Safety and Health Act of 1977, Pub. L. 95-173, as amended by Pub. L. 95-164.

(b) *Active workings* means any place in a coal mine where miners are normally required to work or travel.

(c) *Certified person* means an individual certified by the Secretary in accordance with § 70.202 (Certified person; sampling) to take respirable dust samples required by this part or certified in accordance with § 70.203 (Certified person; maintenance and calibration) to perform the maintenance and calibration of respirable dust sampling equipment as required by this part.

(d) *Concentration* means a measure of the amount of a substance contained per unit volume of air.

(e) *Designated area*. An area of a mine identified by the operator under

§ 75.371(t) (Mine ventilation plan; contents) of this title and approved by the district manager.

(f) *Designated occupation* means the occupation on a mechanized mining unit that has been determined by results of respirable dust samples to have the greatest respirable dust concentration.

(g) *District Manager* means the manager of the Coal Mine Safety and Health District in which the mine is located.

(h) *Mechanized mining unit* means: (1) A unit of mining equipment including hand loading equipment used for the production of material; or (2) a specialized unit which utilizes mining equipment other than specified in § 70.207(e) (Bimonthly sampling; mechanized mining units).

(i) *MRE instrument* means the gravimetric dust sampler with a four channel horizontal elutriator developed by the Mining Research Establishment of the National Coal Board, London, England.

(j) *MSHA* means the Mine Safety and Health Administration of the Department of Labor.

(k) *Normal production shift* means (1) a production shift during which the amount of material produced in a mechanized mining unit is at least 50 percent of the average production reported for the last set of five valid samples; or (2) a production shift during which any amount of material is produced by a new mechanized mining unit, until a set of five valid samples is taken.

(l) *Production shift* means (1) with regard to a mechanized mining unit, a shift during which material is produced, or (2) with regard to a designated area of a mine, a shift during which material is produced and routine day-to-day activities are occurring in the designated area.

(m) *Quartz* means crystalline silicon dioxide (SiO<sub>2</sub>) not chemically combined with other substances and having a distinctive physical structure.

(n) *Respirable dust* means dust collected with a sampling device approved by the Secretary and the Secretary of Health and Human Services in accordance with part 74 (Coal Mine Dust Personal Sampler Units) of this title. Sam-

pling device approvals issued by the Secretary of the Interior and Secretary of Health, Education, and Welfare are continued in effect.

(o) *Secretary* means the Secretary of Labor or his delegate.

(p) *Valid respirable dust sample* means a respirable dust sample collected and submitted as required by this part, and not voided by MSHA.

[45 FR 24000, Apr. 8, 1980, as amended at 47 FR 28095, June 29, 1982; 57 FR 20913, May 15, 1992]

## Subpart B—Dust Standards

AUTHORITY: Secs. 101 and 103(h), Federal Mine Safety and Health Act of 1977, Pub. L. 95-164 as amended by Pub. L. 95-164, 91 Stat. 1291 and 1299 (30 U.S.C. 811 and 813(h)).

SOURCE: 45 FR 24001, Apr. 8, 1980, unless otherwise noted.

### § 70.100 Respirable dust standards.

(a) Each operator shall continuously maintain the average concentration of respirable dust in the mine atmosphere during each shift to which each miner in the active workings of each mine is exposed at or below 2.0 milligrams of respirable dust per cubic meter of air as measured with an approved sampling device and in terms of an equivalent concentration determined in accordance with § 70.206 (Approved sampling devices; equivalent concentrations).

(b) Each operator shall continuously maintain the average concentration of respirable dust within 200 feet outby the working faces of each section in the intake airways at or below 1.0 milligrams of respirable dust per cubic meter of air as measured with an approved sampling device and in terms of an equivalent concentration determined in accordance with § 70.206 (Approved sampling devices; equivalent concentrations).

### § 70.101 Respirable dust standard when quartz is present.

When the respirable dust in the mine atmosphere of the active workings contains more than 5 percent quartz, the operator shall continuously maintain the average concentration of respirable dust in the mine atmosphere during each shift to which each miner in the

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active workings is exposed at or below a concentration of respirable dust, expressed in milligrams per cubic meter of air as measured with an approved sampling device and in terms of an equivalent concentration determined in accordance with § 70.206 (Approved sampling devices; equivalent concentrations), computed by dividing the percent of quartz into the number 10.

*Example:* The respirable dust associated with a mechanized mining unit or a designated area in a mine contains quartz in the amount of 20%. Therefore, the average concentration of respirable dust in the mine atmosphere associated with that mechanized mining unit or designated area shall be continuously maintained at or below 0.5 milligrams of respirable dust per cubic meter of air ( $10/20=0.5$  mg/m<sup>3</sup>).

## Subpart C—Sampling Procedures

AUTHORITY: 30 U.S.C. 811, 813(h), and 957.

SOURCE: 58 FR 63528, Dec. 2, 1993, unless otherwise noted.

### § 70.201 Sampling; general requirements.

(a) Each operator shall take respirable dust samples of the concentration of respirable dust in the active workings of the mine as required by this part with a sampling device approved by the Secretary and the Secretary of Health and Human Services under part 74 (Coal Mine Dust Personal Sampler Units) of this title.

(b) Sampling devices shall be worn or carried directly to and from the mechanized mining unit or designated area to be sampled and shall be operated portal to portal. Sampling devices shall remain operational during the entire shift or for 8 hours, whichever time is less.

(c) Upon request from the District Manager, the operator shall submit the date on which collecting any respirable dust samples required by this part will begin.

(d) During the time for abatement fixed in a citation for violation of § 70.100 (Respirable dust standards) or § 70.101 (Respirable dust standard when quartz is present), the operator shall take corrective action to lower the concentration of respirable dust to within the permissible concentration

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and then sample each production shift until five valid respirable dust samples are taken.

[45 FR 24000, Apr. 8, 1980, as amended at 47 FR 28095, June 29, 1982]

### § 70.202 Certified person; sampling.

(a) The respirable dust sampling required by this part shall be done by a certified person.

(b) To be certified, a person shall pass the MSHA examination on sampling of respirable coal mine dust.

(c) A person may be temporarily certified by MSHA to take respirable dust samples if the person receives instruction from an authorized representative of the Secretary in the methods of collecting and submitting samples under this rule. The temporary certification shall be withdrawn if the person does not successfully complete the examination conducted by MSHA on sampling of respirable coal mine dust within six months from the issue date of the temporary certification.

### § 70.203 Certified person; maintenance and calibration.

(a) Approved sampling devices shall be maintained and calibrated by a certified person.

(b) To be certified, a person shall pass the MSHA examination on maintenance and calibration procedures for respirable dust sampling equipment.

(c) A person may be temporarily certified by MSHA to maintain and calibrate approved sampling devices if the person receives instruction from an authorized representative of the Secretary in the maintenance and calibration procedures for respirable dust sampling equipment under this rule. The temporary certification shall be withdrawn if the person does not successfully complete the examination conducted by MSHA on maintenance and calibration procedures within six months from the issue date of the temporary certification.

### § 70.204 Approved sampling devices; maintenance and calibration.

(a) Approved sampling devices shall be maintained as approved under part 74 (Coal Mine Dust Personal Sampler Units) of this title and calibrated in accordance with MSHA Informational

Report No. 1121, "Standard Calibration and Maintenance Procedures for Wet Test Meters and Coal Mine Respirable Dust Samplers (Supersedes IR 1073)," by a person certified in accordance with § 70.203 (Certified person; maintenance and calibration).

(b) Approved sampling devices shall be calibrated at the flowrate of 2.0 liters of air per minute, or at a different flowrate as prescribed by the Secretary and the Secretary of Health and Human Services for the particular device, before they are put into service and at intervals not to exceed 200 hours of operating time thereafter.

(c) A calibration mark shall be placed on the flowmeter of each approved sampling device to indicate the proper position of the float when the sampler is operating at a flowrate of 2.0 liters of air per minute or other flowrate prescribed by the Secretary and the Secretary of Health and Human Services for the particular device. The standard to denote proper flow is when the lowest part of the float is tangent to the top of the calibration mark.

(d) Approved sampling devices shall be tested and examined immediately before each sampling shift and necessary external maintenance shall be performed to assure that the sampling devices are clean and in proper working condition by a person certified in accordance with § 70.202 (Certified person; sampling) or § 70.203 (Certified person; maintenance and calibration). This testing and examination shall include the following:

(1) Testing the voltage of each battery while under actual load to assure the battery is fully charged. The voltage for nickel cadmium cell batteries shall not be lower than the product of the number of cells in the battery pack multiplied by 1.25. The voltage for other than nickel cadmium cell batteries shall not be lower than the product of the number of cells in the battery pack multiplied by the manufacturer's nominal voltage per cell value;

(2) Examination of all components of the cyclone to assure that they are clean and free of dust and dirt;

(3) Examination of the inner surface of the cyclone on the approved sam-

pling device to assure that it is free of scoring;

(4) Examination of the external tubing on the approved sampling device to assure that it is clean and free of leaks, and;

(5) Examination of the clamping and positioning of the cyclone body, vortex finder and cassette to assure that they are rigid, in alignment, and firmly in contact.

(e) In accordance with 5 U.S.C. 552(a), MSHA Informational Report No. 1121 referenced in paragraph (a) of this section is hereby incorporated by reference and made a part of this section as if it was set forth in full. The incorporated publication is available without charge at each Coal Mine Safety and Health District and Subdistrict office of MSHA and is on file at the Office of the Federal Register Information Center. Any future amendments to MSHA Informational Report No. 1121 will be announced in the FEDERAL REGISTER. This incorporation by reference was approved March 25, 1980, by the Director of the Office of the Federal Register.

[45 FR 24000, Apr. 8, 1980, as amended at 47 FR 28095, June 29, 1982]

**§ 70.205 Approved sampling devices; operation; air flowrate.**

(a) Sampling devices approved in accordance with part 74 (Coal Mine Dust Personal Sampler Units) of this title shall be operated at the flowrate of 2.0 liters of air per minute, or at a different flowrate as prescribed by the Secretary and the Secretary of Health and Human Services for the particular device.

(b) Except as provided in paragraph (d) of this section, each approved sampling device shall be examined each shift by a person certified in accordance with § 70.202 (Certified person; sampling) during the second hour after being put into operation to assure that the sampling device is operating properly and at the proper flowrate. If the proper flowrate is not maintained, necessary adjustments shall be made by the certified person.

(c) Each sampling device shall be examined each shift by a person certified in accordance with § 70.202 (Certified person; sampling) during the last hour

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of operation to assure that the sampling device is operating properly and at the proper flowrate. If the proper flowrate is not maintained, the respirable dust sample shall be transmitted to MSHA with a notation by the certified person on the dust data card stating that the proper flowrate was not maintained.

(d) Paragraph (b) of this section shall not apply if the approved sampling device is being operated in a breast or chamber of an anthracite coal mine where the full box mining method is used.

[45 FR 24000, Apr. 8, 1980, as amended at 47 FR 28095, June 29, 1982]

### § 70.206 Approved sampling devices; equivalent concentrations.

The concentration of respirable dust shall be determined by dividing the weight of dust in milligrams collected on the filter of an approved sampling device by the volume of air in cubic meters passing through the filter and then converting that concentration to an equivalent concentration as measured with an MRE instrument. To convert a concentration of respirable dust as measured with an approved sampling device to an equivalent concentration of respirable dust as measured with an MRE instrument, the concentration of respirable dust measured with the approved sampling device shall be multiplied by the constant factor prescribed by the Secretary for the approved sampling device used, and the product shall be the equivalent concentration as measured with an MRE instrument.

### § 70.207 Bimonthly sampling; mechanized mining units.

(a) Each operator shall take five valid respirable dust samples from the designated occupation in each mechanized mining unit during each bimonthly period beginning with the bimonthly period of November 1, 1980. Designated occupation samples shall be collected on consecutive normal production shifts or normal production shifts each of which is worked on consecutive days. The bimonthly periods are:

January 1-February 28 (29)  
March 1-April 30

May 1-June 30  
July 1-August 31  
September 1-October 31  
November 1-December 31.

(b) When the respirable dust standard is changed in accordance with § 70.101 (Respirable dust standard when quartz is present), respirable dust sampling of mechanized mining units shall begin on the first production shift during the next bimonthly period following notification of such change from MSHA.

(c) Upon issuance of a citation for a violation of § 70.100(a) (Respirable dust standards) or § 70.101 (Respirable dust standard when quartz is present) involving a designated occupation in a mechanized mining unit, paragraphs (a) and (b) of this section shall not apply to that unit until the violation is abated in accordance with § 70.201(d) (Sampling; general requirements).

(d) Each designated occupation sample shall be taken on a normal production shift. If a normal production shift is not achieved, the sample for that shift may be voided by MSHA. However, any sample, regardless of production, with a respirable dust concentration greater than 2.5 milligrams per cubic meter of air will be used to determine the average concentration for that mechanized mining unit.

(e) Unless otherwise directed by the District Manager, the designated occupation samples shall be taken by placing the sampling device as follows:

(1) *Conventional section using cutting machine.* On the cutting machine operator or on the cutting machine within 36 inches inby the normal working position;

(2) *Conventional section shooting off the solid.* On the loading machine operator or on the loading machine within 36 inches inby the normal working position;

(3) *Continuous mining section other than auger-type.* On the continuous mining machine operator or on the continuous mining machine within 36 inches inby the normal working position;

(4) *Continuous mining machine; auger-type.* On the jacksetter who works nearest the working face on the return air side of the continuous mining machine or at a location that represents

the maximum concentration of dust to which the miner is exposed;

(5) *Scoop section using cutting machine.* On the cutting machine operator or on the cutting machine within 36 inches inby the normal working position;

(6) *Scoop section, shooting off the solid.* On the coal drill operator or on the coal drill within 36 inches inby the normal working position;

(7) *Longwall section.* On the miner who works nearest the return air side of the longwall working face or along the working face on the return side within 48 inches of the corner;

(8) *Hand loading section with a cutting machine.* On the cutting machine operator or on the cutting machine within 36 inches inby the normal working position;

(9) *Hand loading section shooting off the solid.* On the hand loader exposed to the greatest dust concentration or at a location that represents the maximum concentration of dust to which the miner is exposed;

(10) *Anthracite mine sections.* On the hand loader exposed to the greatest dust concentration or at a location that represents the maximum concentration of dust to which the miner is exposed.

(f)(1) Each mechanized mining unit will be assigned a four digit identification number by MSHA. The mechanized mining unit shall retain that identification number regardless of where the unit relocates within the mine.

(2) When two sets of mining equipment are provided in a series of working places and only one production crew is employed at any given time on either set of mining equipment, the two sets of equipment shall be identified as a single mechanized mining unit. When two or more mechanized mining units are simultaneously engaged in the production of material within the same working section, each such mechanized mining unit shall be identified separately.

**§ 70.208 Bimonthly sampling; designated areas.**

(a) Each operator shall take one valid respirable dust sample from each designated area on a production shift during each bimonthly period beginning

with the bimonthly period of December 1, 1980. The bimonthly periods are:

February 1-March 31  
April 1-May 31  
June 1-July 31  
August 1-September 30  
October 1-November 30  
December 1-January 31.

(b) When the respirable dust standard is changed in accordance with § 70.101 (Respirable dust standard when quartz is present), respirable dust sampling of designated areas shall begin on the first production shift during the next bimonthly period following notification of such change from MSHA.

(c) Upon notification from MSHA that any respirable dust sample taken from a designated area to meet the requirements of paragraph (a) or (b) of this section exceeds the applicable standard in § 70.100 (Respirable dust standards) or § 70.101 (Respirable dust standard when quartz is present), the operator shall take five valid respirable dust samples from that designated area within 15 calendar days. The operator shall begin such sampling on the first day on which there is a production shift following the day of receipt of notification.

(d) Upon issuance of a citation for a violation of § 70.100 (Respirable dust standards) or § 70.101 (Respirable dust standard when quartz is present) involving a designated area, paragraphs (a), (b) and (c) of this section shall not apply to that designated area until the violation is abated in accordance with § 70.201(d) (Sampling; general requirements).

(e) Designated area samples shall be collected at locations to measure respirable dust generation sources in the active workings. The approved mine ventilation plan contents required by § 75.371(t) of this chapter shall show the specific locations where designated area samples will be collected. Each designated area will be assigned a four-digit identification number by MSHA.

(f) MSHA approval of the operator's ventilation system and methane and dust control plan may be revoked based on samples taken by MSHA or in accordance with this part 70.

[45 FR 24000, Apr. 8, 1980, as amended at 57 FR 20913, May 15, 1992]

**§ 70.209 Respirable dust samples; transmission by operator.**

(a) The operator shall transmit within 24 hours after the end of the sampling shift all samples collected to fulfill the requirements of this part in containers provided by the manufacturer of the filter cassette to: Respirable Dust Processing Laboratory, Pittsburgh Safety and Health Technology Center, Cochran Mill Road, Building 38, P.O. Box 18179, Pittsburgh, Pennsylvania 15236-0179, or to any other address designated by the District Manager.

(b) The operator shall not open or tamper with the seal of any filter cassette or alter the weight of any filter cassette before or after it is used to fulfill the requirements of this part.

(c) A person certified in accordance with § 70.202 (Certified person; sampling) shall properly complete the dust data card that is provided by the manufacturer for each filter cassette. The card shall have an identification number identical to that on the cassette used to take the sample and be submitted to MSHA with the sample. Each card shall be signed by the certified person and shall include that person's certification number. Respirable dust samples with data cards not properly completed will be voided by MSHA.

(d) All respirable dust samples collected by the operator shall be considered taken to fulfill the sampling requirements of part 70, 71 or 90 of this title, unless the sample has been identified in writing by the operator to the District Manager, prior to the intended sampling shift, as a sample to be used for purposes other than required by part 70, 71 or 90 of this title.

(e) Respirable dust samples received by MSHA in excess of those required by this part shall be considered invalid samples.

(Pub. L. No. 96-511, 94 Stat. 2812 (44 U.S.C. 3501 et seq.))

[45 FR 24006, Apr. 8, 1981, as amended at 47 FR 14696, Apr. 6, 1982; 58 FR 63528, Dec. 2, 1993; 60 FR 33723, June 29, 1995; 60 FR 35695, July 11, 1995]

**§ 70.210 Respirable dust samples; report to operator; posting.**

(a) The Secretary shall provide the operator with a report of the following

data on respirable dust samples as soon as practicable:

- (1) The mine identification number;
  - (2) The mechanized mining unit or designated area within the mine from which the samples were taken;
  - (3) The concentration of respirable dust, expressed in milligrams per cubic meter of air, for each valid sample;
  - (4) The average concentration of respirable dust, expressed in milligrams per cubic meter of air, for all valid samples;
  - (5) The occupation code, where applicable, and;
  - (6) The reason for voiding any samples.
- (b) Upon receipt, the operator shall post this data for at least 31 days on the mine bulletin board.

**§ 70.220 Status change reports.**

(a) If there is a change in operational status that affects the respirable dust sampling requirements of this part, the operator shall report the change in operational status of the mine, mechanized mining unit, or designated area to the MSHA District Office or to any other MSHA office designated by the District Manager. Status changes shall be reported in writing within 3 working days after the status change has occurred.

(b) Each specific operational status is defined as follows: (1) Underground mine: (i) *Producing*—has at least one mechanized mining unit producing material.

(ii) *Nonproducing*—no material is being produced.

(iii) *Abandoned*—the work of all miners has been terminated and production activity has ceased.

(2) Mechanized mining unit:

(i) *Producing*—producing material from a working section.

(ii) *Nonproducing*—temporarily ceased production of material.

(iii) *Abandoned*—permanently ceased production of material.

(3) Designated Area:

(i) *Producing*—activity is occurring.

(ii) *Nonproducing*—activity has ceased.

(iii) *Abandoned*—the dust generating source has been withdrawn and activity has ceased.

## Subpart D—Respiratory Equipment

AUTHORITY: Title II, secs. 303(b), and 508, Federal Coal Mine Health and Safety Act of 1969 (83 Stat. 742; 30 U.S.C. 801); secs. 301(a) and 302(a), Federal Mine Safety and Health Amendments Act of 1977, Pub. L. 95-164, 30 U.S.C. 961 and 951 and 29 U.S.C. 577a, 91 Stat. 1317 and 91 Stat. 1319; sec. 508, Federal Mine Safety and Health Act of 1977, Pub. L. 91-173 as amended by Pub. L. 95-164, 30 U.S.C. 957, 83 Stat. 803.

SOURCE: 35 FR 5544, Apr. 3, 1970, unless otherwise noted.

### § 70.300 Respiratory equipment; respirable dust.

Respiratory equipment approved by NIOSH under 42 CFR part 84 shall be made available to all persons whenever exposed to concentrations of respirable dust in excess of the levels required to be maintained under this part. Use of respirators shall not be substituted for environmental control measures in the active workings. Each operator shall maintain a supply of respiratory equipment adequate to deal with occurrences of concentrations of respirable dust in the mine atmosphere in excess of the levels required to be maintained under this part.

[60 FR 30401, June 8, 1995]

### § 70.305 Respiratory equipment; gas, dusts, fumes, or mists.

Respiratory equipment approved by NIOSH under 42 CFR part 84 shall be provided to persons exposed for short periods to inhalation hazards from gas, dusts, fumes, or mist. When the exposure is for prolonged periods, other measures to protect such persons or to reduce the hazard shall be taken.

[60 FR 30401, June 8, 1995]

## Subpart E—Dust From Drilling Rock [Reserved]

## Subpart F—Noise Standard

### § 70.500 Definitions.

As used in this subpart F, the term:

(a) *dBA* means noise level in decibels, relative to a reference level of 20 micro pascals, as measured by the use of an A-weighting and slow metering characteristic as specified in American Na-

tional Standards Institute (ANSI), "Specification for Sound Level Meters," S1.4-1971 (Type S2A).

(b) *Noise exposure* means a period of time during which the noise level is 90 or more dBA;

(c) *Multiple noise exposure* means the daily noise exposure is composed of two or more different noise levels;

(d) *Noise level* is the average dBA during a noise exposure; and,

(e) *Qualified person* means, as the context requires, an individual deemed qualified by the Secretary and designated by the operator to make tests and examinations required by this Act.

(f) *Personal noise dosimeter* means equipment worn by an individual, which performs noise level measurements along with exposure time measurements. The circuitry of the instrument is such that it automatically performs the computation of the multiple noise exposure specified in § 70.502.

(Sec. 101, Federal Mine Safety and Health Act of 1977, Pub. L. 91-173 as amended by Pub. L. 95-164, 91 Stat. 1291 (30 U.S.C. 811); sec. 301, Federal Mine Safety and Health Amendments Act of 1977, Pub. L. 95-164, 91 Stat. 1317 (U.S.C. 961)

[36 FR 12739, July 7, 1971, as amended at 43 FR 40761, Sept. 12, 1978; 44 FR 52827, Sept. 11, 1979]

### § 70.501 Requirements.

Every operator of an underground coal mine shall maintain the noise levels during each shift to which each miner in the active workings of the mine is exposed at or below the permissible noise levels set forth in Table I of this subpart.

*Example:* If a noise is recorded to be 110 dBA then exposure shall not exceed 30 minutes during an 8-hour shift.

(Secs. 101 and 206, 83 Stat. 745 and 765; 30 U.S.C. 801 and 846)

[36 FR 12739, July 7, 1971]

### § 70.502 Computation of multiple noise exposure.

The standard will be considered to have been violated in the case of multiple noise exposure where such exposure totals exceed one as computed by adding the total time of exposure at



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each specified level ( $C_1$ ,  $C_2$ ,  $C_3$  etc.) divided by the total time of exposure permitted at that level ( $T_1$ ,  $T_2$ ,  $T_3$ ). Thus,  $[C_1/T_1] + [C_2/T_2] + [C_3/T_3]$  must not exceed 1.

*Example I:* Exposure of 2 hours at 92 dBA and 1 hour at 100 dBA during an 8-hour shift.

Total minutes of noise exposure at dBA level/Total minutes of permissible noise exposure at dBA level  $[120 \text{ min.}/360 \text{ min.} + 60 \text{ min.}/120 \text{ min.}] = \frac{2}{6} + \frac{1}{2} = \frac{2}{6} + \frac{3}{6} = \frac{5}{6}$

The sum of the fractions does not exceed one; hence the exposure for the shift would not violate the standard.

*Example II:* Exposure of 3 hours at 95 dBA and 1 hour at 100 dBA during an 8 hour shift.

$$\frac{3}{4} + \frac{1}{2} = \frac{3}{4} + \frac{2}{4} = \frac{5}{4}$$

The sum of the fractions exceeds one; hence the exposure for the shift would violate the standard.

(Secs. 101 and 206, 83 Stat. 745 and 765; 30 U.S.C. 801 and 846)

[36 FR 12739, July 7, 1971]

### § 70.503 Noise exposure measurements; general.

Every coal mine operator shall take accurate readings of the noise levels to which each miner in the active workings of the mine is exposed during the performance of the duties to which he is normally assigned.

(Sec. 101, Federal Mine Safety and Health Act of 1977, Pub. L. 91-173 as amended by Pub. L. 95-164, 91 Stat. 1291 (30 U.S.C. 811); sec. 301, Federal Mine Safety and Health Amendments Act of 1977, Pub. L. 95-164, 91 Stat. 1317 (30 U.S.C. 961))

[36 FR 12739, July 7, 1971, as amended at 43 FR 40761, Sept 12, 1978; 44 FR 52827, Sept. 11, 1979]

### § 70.504 Noise exposure measurements; by whom done.

The noise exposure measurements required by this subpart F shall be taken by, or as directed by, a person who has met the minimum requirements set forth in § 70.504-1, and has been certified by the Assistant Secretary of Labor for Mine Safety and Health, Mine Safety and Health Administration as qualified to take noise exposure

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measurements as prescribed in this subpart F.

(Sec. 101, Federal Mine Safety and Health Act of 1977, Pub. L. 91-173 as amended by Pub. L. 95-164, 91 Stat. 1291 (30 U.S.C. 811); sec. 301, Federal Mine Safety and Health Amendments Act of 1977, Pub. L. 95-164, 91 Stat. 1317 (30 U.S.C. 961))

[36 FR 12739, July 7, 1971, as amended at 43 FR 12319, Mar 24, 1978; 43 FR 40761, Sept. 12, 1978; 43 FR 43458, Sept. 26, 1978; 44 FR 52827, Sept. 11, 1979]

### § 70.504-1 Persons qualified to measure noise exposures; minimum requirements.

The following persons shall be considered qualified to take noise exposure measurements as prescribed in this subpart F;

(a) Any person who has been certified by the Mine Safety and Health Administration as an instructor in noise measurement training programs;

(b) Any person who has satisfactorily completed a noise training course conducted by the Mine Safety and Health Administration and has been certified by the Administration as a qualified person; and,

(c) Any person who has satisfactorily completed a noise training course approved by the Mine Safety and Health Administration and has been certified by the Administration as a qualified person.

(Sec. 101, Federal Mine Safety and Health Act of 1977, Pub. L. 91-173 as amended by Pub. L. 95-164, 91 Stat. 1291 (30 U.S.C. 811); sec. 301, Federal Mine Safety and Health Amendments Act of 1977, Pub. L. 95-164, 91 Stat. 1317 (30 U.S.C. 961))

[36 FR 12739, July 7, 1971, as amended at 43 FR 40761, Sept. 12, 1978; 44 FR 52827, Sept. 11, 1979]

### § 70.504-2 Certification of qualified persons by the Mine Safety and Health Administration.

Upon a satisfactory showing that a person has met the minimum requirements for taking noise exposure measurements set forth in § 70.504-1, the Mine Safety and Health Administration shall certify that such person has the ability and capacity to conduct tests of the noise exposure in a coal mine and to report and certify the results of such tests to the Secretary and

the Secretary of Health and Human Services.

(Sec. 101, Federal Mine Safety and Health Act of 1977, Pub. L. 91-173 as amended by Pub. L. 95-164, 91 Stat. 1291 (30 U.S.C. 811); sec. 301, Federal Mine Safety and Health Amendments Act of 1977, Pub. L. 95-164, 91 Stat. 1317 (30 U.S.C. 961))

[36 FR 12739, July 7, 1971, as amended at 43 FR 40761, Sept. 12, 1978; 44 FR 52827, Sept. 11, 1979; 47 FR 28095, June 29, 1982]

**§70.505 Noise exposure measurement equipment.**

Noise exposure measurements shall be taken only with equipment which is approved by the Mine Safety and Health Administration as permissible electric face equipment under the provisions of part 18 of this chapter and which in the case of sound level meters, meets American National Standards Institute (ANSI), "Specification for Sound Level Meters," S1.4-1971 (Type S2A), or in the case of personal noise dosimeters, has been found to be acceptable by the Mine Safety and Health Administration.

(Sec. 101, Federal Mine Safety and Health Act of 1977, Pub. L. 91-173 as amended by Pub. L. 95-164, 91 Stat. 1291 (30 U.S.C. 811); sec. 301, Federal Mine Safety and Health Amendments Act of 1977, Pub. L. 95-164, 91 Stat. 1317 (30 U.S.C. 961))

[43 FR 40761, Sept. 12, 1978; 44 FR 52827, Sept. 11, 1979]

**§70.506 Noise exposure measurement procedures; instrument setting; calibration.**

(a) Noise exposure measurements made with sound level meters shall conform to the following:

(1) Noise exposure measurements shall be made at locations where the noise is typical of that entering the ears of the miner whose exposure is under consideration.

(2) Five measurements shall be made for each type of noise exposure producing operation to which the miner under consideration is exposed.

(3) Each measurement shall be made by observing the A-scale readings for 30 seconds and recording the noise level.

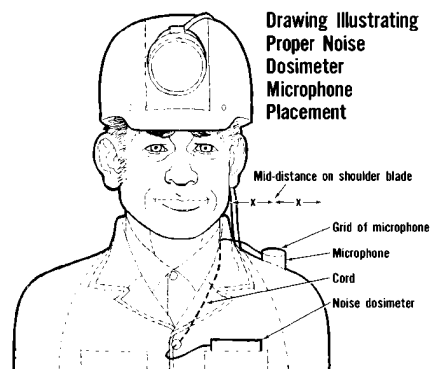
(4) The average of the five noise level measurements shall be considered as the noise level measurement which is representative of the operation.

(5) Where different and distinct noise levels occur at various phases of an operation, noise exposure measurements shall be made in accordance with this section for each distinct phase.

(6) The noise levels and the estimated length of time the miner is exposed to each level during a normal work shift shall be reported for the operation.

(b) Noise exposure measurements made with personal noise dosimeters shall conform to the following:

(1) For the miner whose noise exposure is under consideration, noise exposure measurements shall be made with the personal noise dosimeter microphone located at the top of the shoulder, midway between the neck and the end of the shoulder with the microphone pointing in a vertical upward direction in accordance with the diagram shown below:



(2) To the extent practical, the personal noise dosimeter instrument case and microphone cable shall be positioned underneath exterior clothing so as to minimize potential safety problems and damage to the instrument. The microphone shall not be covered by clothing.

(3) The personal noise dosimeter shall be worn by the miner whose noise exposure is under consideration for an entire normal work shift and the accumulated per centum of the noise exposure shall be reported.

(c) Noise exposure measurement instruments specified in §70.505 shall be set to operate with the A-weighted network and slow response.

(d)(1) Sound level meters and personal noise dosimeters used by an operator in fulfilling the requirements of this subpart shall be acoustically calibrated in accordance with the manufacturer's instructions before and after each shift on which the meter is used.

(2) Sound level meters and personal noise dosimeters used by an authorized representative of the Secretary shall be acoustically calibrated in accordance with the manufacturer's instructions or by another equivalent procedure before and after each shift on which the meter is used.

(3) Personal noise dosimeters shall be recalibrated annually, including, as a minimum, the following:

(i) Visual inspection of the microphone for any foreign matter or damage,

(ii) Comparison of the dosimeter, at 1000 Hz, with a laboratory type condenser microphone of known sensitivity, and

(iii) Frequency response testing in a free or diffused field where the sound field is established using a laboratory type condenser microphone of known sensitivity.

(4) A document containing the date of the annual recalibration of each personal noise dosimeter and the names of the individual and organization performing the calibration shall be kept on file at each mine office.

(e)(1) Acoustical calibrators which are used to calibrate sound level meters and personal noise dosimeters shall be recalibrated once a year using a laboratory type condenser microphone of known sensitivity as determined by a National Bureau of Standards calibration.

(2) A document containing the date of the annual calibration of each acoustical calibrator and the names of the individual and organization performing the calibration shall be on file at each mine office.

(Sec. 101, Federal Mine Safety and Health Act of 1977, Pub. L. 95-164, 91 Stat. 1291 (30 U.S.C. 811); sec. 301, Federal Mine Safety and Health Amendments Act of 1977, Pub. L. 95-164, 91 Stat. 1317 (30 U.S.C. 961))

[43 FR 40761, Sept. 12, 1978, as amended at 43 FR 50678, Oct. 31, 1978; 44 FR 52827, Sept. 11, 1979]

**§ 70.507 Initial noise exposure survey.**

On or before June 30, 1971, each operator shall:

(a) Conduct, in accordance with this subpart, a survey of the noise levels to which each miner in the active workings of the mine is exposed during his normal work shift; and,

(b) Report and certify to the Mine Safety and Health Administration, and the Department of Health and Human Services, the results of such survey using the Coal Mine Noise Data Report, Figure 1. Reports shall be sent to:

Division of Automatic Data Processing, Mine Safety and Health Administration, Building 53, Denver Federal Center, Colo. 80225.

(Sec. 101, Federal Mine Safety and Health Act of 1977, Pub. L. 95-164, 91 Stat. 1291 (30 U.S.C. 811); sec. 301, Federal Mine Safety and Health Amendments Act of 1977, Pub. L. 95-164, 91 Stat. 1317 (30 U.S.C. 961))

[36 FR 12739, July 7, 1971, as amended at 43 FR 40762, Sept. 12, 1978; 44 FR 52827, Sept. 11, 1979; 47 FR 28095, June 29, 1982]

**§ 70.508 Periodic noise exposure survey.**

(a) At intervals of at least every 6 months after June 30, 1971, but in no case shall the interval be less than 3 months, each operator shall conduct, in accordance with this subpart, periodic surveys of the noise levels to which each miner in the active workings of the mine is exposed and shall report and certify the results of such surveys to the Mine Safety and Health Administration, and the Department of Health and Human Services, using the Coal Mine Noise Data Report Form. Reports shall be sent to:

Division of Automatic Data Processing, Mine Safety and Health Administration, Building 53, Denver Federal Center, Colo. 80225.

(b) Where no A-scale reading recorded for any miner during an initial or periodic noise exposure survey exceeds 90 dBA, the operator shall not be required to survey such miner during any subsequent periodic noise level survey required by this section: *Provided, however*, That the name and job position of each such miner shall be reported in every periodic survey and the operator shall certify that such miner's job duties and noise exposure levels

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have not changed substantially during the preceding 6-month period.

(Sec. 101, Federal Mine Safety and Health Act of 1977, Pub. L. 95-164 as amended by Pub. L. 95-164, 91 Stat. 1291 (30 U.S.C. 811); sec. 301, Federal Mine Safety and Health Amendments Act of 1977, Pub. L. 95-164, 91 Stat. 1317 (30 U.S.C. 961), Pub. L. No. 96-511, 94 Stat. 2812 (44 U.S.C. 3501 et seq.))

[36 FR 12739, July 7, 1971, as amended at 43 FR 40762, Sept. 12, 1978; 44 FR 52827, Sept. 11, 1979; 47 FR 14696, Apr. 6, 1982; 47 FR 28095, June 29, 1982; 60 FR 33723, June 29, 1995]

### **§ 70.509 Supplemental noise exposure survey; reports and certification.**

(a) Where the certified results of an initial noise exposure survey conducted in accordance with § 70.507, or a periodic noise exposure survey conducted in accordance with § 70.508, show that any miner in the active workings of the mine is exposed to a noise level in excess of the permissible noise level prescribed in Table I, the operator shall conduct a supplemental noise exposure survey with respect to each miner whose noise exposure exceeds this standard. This survey shall be conducted within 15 days following notification to the operator by the Mine Safety and Health Administration to conduct such survey.

(b) Supplemental noise exposure surveys shall be conducted by taking noise exposure measurements in accordance with § 70.506, however, noise exposure measurements shall be taken during the entire period of each individual operation to which the miner under consideration is actually exposed during his normal work shift.

(c) Each operator shall report and certify the results of each supplemental noise level survey conducted in accordance with this section to the Mine Safety and Health Administration and the Department of Health and Human Services using the Coal Mine Noise Data Report Form to record noise level readings taken with respect to all operations during which such measurements were taken.

(d) Supplemental noise exposure surveys shall, upon completion, be mailed to:

Division of Automatic Data Processing, Mine Safety and Health Administration, Building 53, Denver Federal Center, Colo. 80225.

(Sec. 101, Federal Mine Safety and Health Act of 1977, Pub. L. 95-164 as amended by Pub. L. 95-164, 91 Stat. 1291 (30 U.S.C. 811); sec. 301, Federal Mine Safety and Health Amendments Act of 1977, Pub. L. 95-164, 91 Stat. 1317 (30 U.S.C. 961); Pub. L. No. 96-511, 94 Stat. 2812 (44 U.S.C. 3501 et seq.))

[36 FR 12739, July 7, 1971, as amended at 43 FR 40762, Sept. 12, 1978; 44 FR 52827, Sept. 11, 1979; 47 FR 14696, Apr. 6, 1982; 47 FR 28095, June 29, 1982; 60 FR 33723, June 29, 1995]

### **§ 70.510 Violation of noise standard; notice of violation; action required by operator.**

(a) Where the results of a supplemental noise exposure survey conducted in accordance with § 70.509 show that any miner in the active workings of the mine is exposed to noise levels which exceed the permissible noise levels prescribed in Table I, the Secretary shall issue a notice to the operator that he is in violation of this subpart.

(b) Upon receipt of a Notice of Violation issued pursuant to paragraph (a) of this section, the operator shall:

(1) Institute promptly administrative and/or engineering controls necessary to assure compliance with the standard. Such controls may include protective devices other than those devices or systems which the Secretary or his authorized representative finds to be hazardous in such mine.

(2) Within 60 days following the issuance of any Notice of Violation of this subpart, submit for approval to a joint Mine Safety and Health Administration-Health and Human Services committee, a plan for the administration of a continuing, effective hearing conservation program to assure compliance with this subpart, including provision for:

(i) Reducing environmental noise levels;

(ii) Personal ear protective devices to be made available to the miners;

(iii) Preemployment and periodic audiograms.

(3) Plans required under paragraph (b) (2) of this section shall be submitted to:

Administrator, Coal Mine Health and Safety,  
Mine Safety and Health Administration,

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30 CFR Ch. I (7–1–99 Edition)

Department of Labor, 4015 Wilson Boulevard, Arlington, Va. 22203.

TABLE I—PERMISSIBLE NOISE EXPOSURES

Duration per day (hours)	Noise level (dBA)
8 .....	90
6 .....	92
4 .....	95
3 .....	97
2 .....	100
1½ .....	102
1 .....	105
¾ .....	107
½ .....	110
¼ or less .....	115

FIGURE 1—COAL MINE NOISE DATA REPORT

(SUBMIT ONE FORM FOR EACH MINER)

Date: \_\_\_\_\_ (month) \_\_\_\_\_ (day) \_\_\_\_\_ (year)

Company: \_\_\_\_\_ Mine Name \_\_\_\_\_

Mine I.D. number: \_\_\_\_\_

Section/Pit number: \_\_\_\_\_

Miners name: \_\_\_\_\_

Miners SSN: \_\_\_\_\_

Occupation code: \_\_\_\_\_

Initial \_\_\_\_\_ Periodic \_\_\_\_\_ Supplemental \_\_\_\_\_

Hearing protective device used:

Yes \_\_\_\_\_ No \_\_\_\_\_ If yes "R" value \_\_\_\_\_

Equipment in operation:

Manufacturer \_\_\_\_\_

Type \_\_\_\_\_

Model number \_\_\_\_\_

Serial or company number \_\_\_\_\_

Dosimeter reading: \_\_\_\_\_

Measurement time (In minutes): \_\_\_\_\_

Operations (Loading, tramming, etc.)	Noise level dBA average	Minutes exposure

Signature of qualified person:

(Pub. L. No. 96–511, 94 Stat. 2812 (44 U.S.C. 3501 et seq.))

[36 FR 12739, July 7, 1971, as amended at 43 FR 12319, Mar. 24, 1978; 43 FR 40762, Sept. 12, 1978; 44 FR 52827, Sept. 11, 1979; 47 FR 14696, Apr. 6, 1982; 47 FR 28095, June 29, 1982; 60 FR 33723, June 29, 1995]

§ 70.511 Incorporation by reference.

In accordance with 5 U.S.C. 552(a)(1), the technical publication, "Specification for Sound Level Meters", S1.4–1971 (Type S2A), issued by the American National Standards Institute (ANSI), April 27, 1971, referenced in this subpart F is hereby incorporated by reference and made a part hereof. The incorporated technical publication is available for examination at MSHA, 4015 Wilson Blvd., Arlington, Va. 22203; the National Institute for Occupational Safety and Health, 5600 Fishers Lane, Rockville, Md. 20857; each Coal Mine Health and Safety District and Subdistrict Office and the Federal Register library. In addition, copies of the document can be purchased from the American National Standards Institute (ANSI), 1430 Broadway, New York, N.Y. 10018.

(Sec. 101, Federal Mine Safety and Health Act of 1977, Pub. L. 91–173 as amended by Pub. L. 95–164, 91 Stat. 1291 (30 U.S.C. 811); sec. 301, Federal Mine Safety and Health Amendments Act of 1977, Pub. L. 95–164, 91 Stat. 1317 (30 U.S.C. 961))

[43 FR 40762, Sept. 12, 1978; 44 FR 52827, Sept. 11, 1979]

SUBPARTS G—S [Reserved]

SUBPART T—DIESEL EXHAUST GAS MONITORING

§ 70.1900 Exhaust Gas Monitoring.

(a) During on-shift examinations required by § 75.362, a certified person as defined by § 75.100 of this chapter and designated by the operator as trained or experienced in the appropriate sampling procedures, shall determine the concentration of carbon monoxide (CO) and nitrogen dioxide (NO<sub>2</sub>):

(1) In the return of each working section where diesel equipment is used, at a location which represents the contribution of all diesel equipment on such section;

(2) In the area of the section loading point if diesel haulage equipment is operated on the working section;

(3) At a point in by the last piece of diesel equipment on the longwall or shortwall face when mining equipment is being installed or removed; and

(4) In any other area designated by the district manager as specified in the mine operator's approved ventilation plan where diesel equipment is operated in a manner which can result in significant concentrations of diesel exhaust.

(b) Samples of CO and NO<sub>2</sub> shall be—

(1) Collected in a manner that makes the results available immediately to the person collecting the samples;

(2) Collected and analyzed by appropriate instrumentation which has been maintained and calibrated in accordance with the manufacturer's recommendations; and

(3) Collected during periods that are representative of conditions during normal operations.

(c) Except as provided in § 75.325(j) of this chapter, when sampling results indicate a concentration of CO and/or NO<sub>2</sub> exceeding an action level of 50 percent of the threshold limit values (TLV®) adopted by the American Conference of Governmental Industrial Hygienists, the mine operator shall immediately take appropriate corrective action to reduce the concentrations of CO and/or NO<sub>2</sub> to below the applicable action level. The publication, "Threshold Limit Values for Substance in Workroom Air" (1972) is incorporated by reference and may be inspected at MSHA's Office of Standards, Regulations, and Variances, 4015 Wilson Boulevard, Arlington, VA 22203; at any Coal Mine Health and Safety District and Subdistrict Office; and at the Office of the FEDERAL REGISTER, 800 North Capitol Street, NW Suite 700, Washington, DC. This incorporation by reference was approved by the Director of the Federal Register in accordance with 5 U.S.C. 552(a) and 1 CFR part 51. In addition, copies of the document may be purchased from the Secretary-Treasurer, American Conference of Governmental Industrial Hygienists, Post Office Box 1937, Cincinnati, OH 45202.

(d) A record shall be made when sampling results exceed the action level for the applicable TLV® for CO and/or NO<sub>2</sub>. The record shall be made as part of and in the same manner as the records for hazards required by § 75.363 of this chapter and include the following:

(1) Location where each sample was collected;

(2) Substance sampled and the measured concentration; and

(3) Corrective action taken to reduce the concentration of CO and/or NO<sub>2</sub> to or below the applicable action level.

(e) As of November 25, 1997 exhaust gas monitoring shall be conducted in accordance with the requirements of this section.

[61 FR 55526, Oct. 25, 1996]

## PART 71—MANDATORY HEALTH STANDARDS—SURFACE COAL MINES AND SURFACE WORK AREAS OF UNDERGROUND COAL MINES

### Subpart A—General

Sec.

71.1 Scope.

71.2 Definitions.

### Subpart B—Dust Standards

71.100 Respirable dust standard.

71.101 Respirable dust standard when quartz is present.

### Subpart C—Sampling Procedures

71.201 Sampling; general requirements.

71.202 Certified person; sampling.

71.203 Certified person; maintenance and calibration.

71.204 Approved sampling devices; maintenance and calibration.

71.205 Approved sampling devices; operation; air flowrate.

71.206 Approved sampling devices; equivalent concentrations.

71.207 [Reserved]

71.208 Bimonthly sampling; designated work positions.

71.209 Respirable dust samples; transmission by operator.

71.210 Respirable dust samples; report to operator; posting.

71.220 Status change reports.

### Subpart D—Respirable Dust Control Plans

71.300 Respirable dust control plan; filing requirements.

71.301 Respirable dust control plan; approval by District Manager and posting.